

In re Patent Application of:

WARD ET AL.

Serial No. **10/791,117**

Filed: **03/02/2004**

IN THE CLAIMS

1. (currently amended) A system for reassembling asynchronous transfer mode (ATM) data in real time, comprising:

a circular buffer for storing ATM data, the ATM data comprising frames of information divided into ATM cells comprising at least one of virtual path identifier (VPI) information, virtual channel identifier (VCI) information and channel identifier (CID) information; and

a content addressable memory configured to receive any of the VPI, VCI and CID information related to each ATM cell and configured to provide an index when particular VPI, VCI and CID information is identified, the index corresponding to unique VPI/VCI combinations for ATM Adaptation layer (AAL)2 cells and ~~or~~ VPI/VCI+CID combinations for AAL 5 cells, wherein the index corresponding to each ATM cell is placed in the circular buffer in the context portion of the ATM cell; and

a plurality of parallel processing elements configured to analyze the ATM cells, to determine a cell type using the index, and to determine the ATM adaptation layer (AAL) mode if any of each cell, wherein AAL2 cells and AAL 5 cells are reassembled in real-time into the frames of the ATM data.

2. (previously presented) The system of claim 1, wherein the circular buffer communicates with the plurality of parallel processing elements simultaneously.

3. (original) The system of claim 2, further comprising a fragmentation table configured to receive and store data fragments associated with an ATM cell.

4. (original) The system of claim 3, further comprising a buffer manager configured to accumulate the data fragments and assemble

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the data fragments into a frame.

5. (original) The system of claim 4, further comprising a statistics memory configured to store statistics associated with the cells.

6. (original) The system of claim 5, wherein the statistics are chosen from an idle cell, an unassigned cell, an operation and maintenance (OAM) cell, an AAL 2 cell, an AAL 5 cell, a header error correction (HEC) error cell, a frame count, a byte count, congestion information, AAL5 CRC error count, and resource management (RM) cell count.

7. (original) The system of claim 6, wherein the statistics are gathered for each unique VPI/VCI cell stream.

8. (previously presented) The system of claim 7, wherein the statistics are periodically provided to a processor for display.

9. (currently amended) A method for reassembling asynchronous transfer mode (ATM) data in real time, comprising:

providing ATM data to a circular buffer, the ATM data comprising information divided into ATM cells comprising at least one of virtual path identifier(VPI) information, virtual channel identifier (VCI) information and channel identifier (CID) information;

receiving in a content addressable memory any of the VPI, VCI and CID information related to each ATM cell;

storing the ATM data in the circular buffer;

providing an index when particular VPI, VCI and CID information is identified, the index corresponding to unique VPI/VCI combinations for ATM Adaptation Layer (AAL) 2 cells and ~~or~~ VPI/VCI+CID combinations for AAL 5 cells, wherein the index

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corresponding to each ATM cell is placed in the circular buffer in the context portion of that ATM cell; and

analyzing the ATM cells to determine a cell type using the index, and to determine the ATM adaptation layer (AAL) mode if any of each cell, wherein AAL2 cells and AAL 5 cells are reassembled in real-time into the frames of the ATM data.

10. (previously presented) The method of claim 9, further comprising simultaneously communicating between the circular buffer and a plurality of processing elements.

11. (previously presented) The method of claim 10, further comprising receiving and storing data fragments associated with an ATM cell in a fragmentation table.

12. (original) The method of claim 11, further comprising:
accumulating the data fragments in a buffer manager; and
assembling the data fragments into a frame.

13. (original) The method of claim 12, further comprising storing statistics associated with the cells in a statistics memory.

14. (original) The method of claim 13, wherein the statistics are chosen from an idle cell, an unassigned cell, an operation and maintenance (OAM) cell, an AAL 2 cell, an AAL 5 cell, a header error correction (HEC) error cell, a frame count, a byte count, congestion information, AAL5 CRC error count, and resource management (RM) cell count.

15. (original) The method of claim 14, wherein the statistics are gathered for each unique VPI/VCI cell stream.

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16. (original) The method of claim 15, further comprising periodically providing the statistics to a processor for display.

17. (currently amended) A non-transitory computer readable medium having a program stored thereon, said program causing a computer executing said program to reassemble frames of asynchronous transfer mode (ATM) data in real time, said program comprising:

logic for providing ATM data to a circular buffer, the ATM data comprising information divided into ATM cells, the ATM cells comprising at least one of virtual path identifier (VPI) information, virtual channel identifier (VCI) information and channel identifier (CID) information;

logic for receiving in a content addressable memory any of the VPI, VCI and CID information related to each ATM cell;

logic for storing the ATM data in the circular buffer;

logic for providing an index when particular VPI, VCI and CID information is identified, the index corresponding to unique VPI/VCI combinations for ATM Adaptation Layer (AAL) 2 cells and ~~or~~ VPI/VCI+CID combinations for AAL 5 cells, wherein the index corresponding to each ATM cell is placed in the circular buffer in the context portion of the ATM cell; and

logic for analyzing the ATM cells to determine a cell type using the index, and to determine the ATM adaptation layer (AAL) mode if any of each cell, wherein AAL2 cells and AAL 5 cells are reassembled in real-time into the frames of the ATM data..

18. (previously presented) The non-transitory computer readable medium of claim 17, further comprising logic for simultaneously communicating between the circular buffer and the plurality of processing elements.

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19. (previously presented) The non-transitory computer readable medium of claim 18, further comprising logic for receiving and storing data fragments associated with an ATM cell in a fragmentation table.

20. (previously presented) The non-transitory computer readable medium of claim 19, further comprising:

logic for accumulating the data fragments in a buffer manager; and

logic for assembling the data fragments into a frame.

21. (previously presented) The non-transitory computer readable medium of claim 20, further comprising storing statistics associated with the cells in a statistics memory.

22. (previously presented) The non-transitory computer readable medium of claim 21, wherein the statistics are chosen from an idle cell, an unassigned cell, an operation and maintenance (OAM) cell, an AAL 2 cell, an AAL 5 cell, a header error correction (HEC) error cell, a frame count, a byte count, congestion information, AAL5 CRC error count, and resource management (RM) cell count.

23. (previously presented) The non-transitory computer readable medium of claim 22, wherein the statistics are gathered for each unique VPI/VCI cell stream.

24. (previously presented) The non-transitory computer readable medium of claim 23, further comprising logic for periodically providing the statistics to a processor for display.